



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,484	07/05/2001	Simon Paul Davis	3036/50061	8451

7590 08/22/2005  
CROWELL & MORING LLP  
P.O. Box 14300  
Washington, DC 20044-4300

EXAMINER

TSEGAYE, SABA

ART UNIT	PAPER NUMBER
----------	--------------

2662

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/898,484	DAVIS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Saba Tsegaye	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 May 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/05/01</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is in response to amendment filed 5/09/05. Claims 14-23 are pending. Currently no claims are in condition for allowance.

### ***Specification***

2. The attorney's docket number indicated on page 3 ( line 18-19) should be deleted as it is not relevant to the application. See MPEP 608.01.

### ***Drawings***

3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

4. Claims 14 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calamvokis (US 6,735,212) in view of Brandis et al. (US 6,654,343).

Regarding claims 14 and 17, Calamvokis discloses, in Figs. 1-3, a switching arrangement having: a crossbar (104); a plurality of ingress means (102, 302) connected to an input side of the cross bar (104); a plurality of egress means (102) connected to an output side of the cross-bar (104); an ingress schedule storing means (204-I, 306, 308, 106) for storing a plurality of transmission queue identities (the source PP 204 determines the destination queue from the LCS header. The source PP 204 then instructs the source data slices 202-I where to store the cell), an egress schedule storing means (106, 204-O) for storing a plurality of ingress identities (the scheduler sends a routing tag to each of the egress port 102-O; the routing tag indicates to the ports which of the many source ports will be sending a cell) (column 4, lines 47-67); a management card (106, 108) which communicates configuration primitives to each of the plurality of ingress means and to each of the plurality of egress means, the configuration primitives providing updated entries for ingress and egress schedule storing means (column 4, lines 12-21; column 5, lines 43-64); whereby at each cell transmit time, a cell transmitted from a referenced transmission queue in the ingress means is received at the egress means from the referenced ingress identity (column 4, lines 32-67).

However, Calamvokis does not expressly disclose that each ingress means and egress means are connected to a respective scheduler.

Brandis teaches, in Figs. 3 and 4, ingress 300 and an egress 400. The ingress 300 includes multiple flow queues and an ingress scheduler 205. The egress includes multiple egress queues and an egress scheduler 215. Further, Brandis suggests that there may be multiple ingress schedulers 205 and they may transfer cells from multiple packets across the switch fabric 210 simultaneously (column 4, lines 35-39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Calamvokis ingress and egress means to connect to a respective scheduler, as suggested by Brandis. The suggestion/motivation for doing so would have been that Calamvokis discloses that each port 102 has one port processor 204-I and six or seven DS 202 devices, therefore, adding a respective scheduler to each ingress and egress means, signals would have been processed simultaneously and that increases transmission speed and provide a higher overall throughput.

Further, Calamvokis does not disclose ingress pointer means for referencing one of the stored pluralities of transmission queue identities and egress pointer means for referencing one of the stored pluralities of ingress identities from which data is to be received to manage the contents of each ingress schedule storing means and each egress schedule storing means.

Brandis teaches that the transmissions by the ingress scheduler 205 and receptions by the egress scheduler 215 are synchronized. Further, Brandis teaches that each flow queue stores one or more flows. Pointers may be used to determine a beginning of each flow, and each flow has a priority level (see fig 3). Fig. 4 shows queues in the egress. Flows of the same priority level (for example flow 318 in fig. 3) are stored in the same egress queue (for example the egress queue 420).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a pointer, such as that suggested by Brandis, in the scheduler of Calamvokis in order to avoid delays. The suggestion/motivation for doing so would have been that Calamvokis discloses that the source PP 204-I determines the destination queue from the LCS header and then instructs the source data slices 202-I **where to store the cell**. The source PP 204-I also

Art Unit: 2662

informs the scheduler 106 that a new cell has arrived so that the scheduler may **add it to the list of cells** waiting to be forwarded through the crossbar 104. Therefore combining the pointer with the location of the cells would determine a beginning and an end of each cells and that enables connection-oriented-like QoS functionality.

Regarding claims 18 and 19, Brandis discloses moving the ingress pointer and the egress pointer to a next location (column 5, lines 57-60).

5. Claims 15, 16 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calamvokis in view of Brandis et al. as applied to claim 14 above, and further in view of Chang et al. (US 6,704,312).

Calamvokis in view of Brandis discloses all the claim limitations as stated above, except for calculating crossbar rates according to current traffic load and quality of service.

Chang teaches a packet switching apparatus and method with rate guarantees (based on traffic load and quality of service) using bandwidth decomposition (column 2, lines 24-52, column 9, lines 56-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Calamvokis in view of Brandis apparatus to calculate crossbar rates according to current traffic load and quality of service, as taught by Chang. The motivation is a more accurate and efficient system that used to control the buffering and enqueueing methods to achieve a measure of throughput balance or fairness among flows, thus managing switch bandwidth as efficiently as possible as shown by Chang on column 9, lines 56-65.

*Response to Arguments*

6. Applicant's arguments with respect to claims 14-23 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

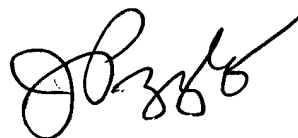
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2662

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST

August 18, 2005

A handwritten signature in black ink, appearing to read 'J. Pezzlo', with a stylized flourish at the end.

**JOHN PEZZLO**  
**PRIMARY EXAMINER**